Fig. 14. The longitudinal axis of the nucleus entirely filled with granules.
Fig. 15. Bud-like scion from a rosette of *Epistylis flavicans*, magnified about 300 diam.: *n*, nucleus; *b*, contractile vesicle.
Fig. 16. Encysted *Epistylis flavicans.*
Fig. 17. Branch of *Epistylis flavicans* on which the nuclear formations described under figs. 10-14 occurred. For distinction from those of fig. 9 the nuclei are not visible.
Fig. 18. Large variety of *Epistylis flavicans*: *x*, the parasitic (?) Flagellata seated on the peduncle.
Fig. 19. The parasitic (?) Flagellata under a higher power.

PLATE XVI.

Fig. 1. Representation of the alimentary system of *Epistylis flavicans.* The animals have been subjected to a carmine diet. The arrows indicate the current of rotation of the coloured material (balls of nutriment) in the interior of the digestive body-cavity: *m*, buccal orifice (entrance into the vestibulum); *o*, œsophagus; *v*, funnel-like termination of the œsophagus; *d*, canaliform continuation of the funnel. The colour-balls issuing from the funnel glide as spindle-shaped bodies (*b*) through the canal, and project at *b'* with a little knob from its hinder opening; *n*, nucleus.
Fig. 2. The alimentary tube of *Epistylis flavicans* isolated. The arrows indicate the direction of the flow of the food: *m*, mouth; *k* & *k'*, valvular partitions; *o*, œsophagus; *v*, funnel; *d*, canaliform continuation of the funnel; *h*, anus, from which a long seta projects outwards.
Fig. 3. Alimentary apparatus of *Epistylis plicatilis.*
Fig. 4. Branch of *Epistylis plicatilis*: *k*, contracted animal; *n*, nucleus with nucleoles; *b*, contractile vesicle; *g*, muscles.
Fig. 5. Posterior adherent extremity of the peduncle of *Epistylis plicatilis*: *f*, foot with sole.

L.—*On Indian Mud-Tortoises* (Trionyx).

By Dr. J. E. GRAY, F.R.S. &c.

BEFORE I saw the 'Annals' of last month, I was told that Dr. Anderson had examined nearly two hundred specimens of Indian mud-tortoises. I observed that I supposed he had availed himself of my suggestion, and was about to give us a paper worthy of his position in the Museum and University. But when I saw the paper, this delusion was dispelled. The paper might be shortly written thus:—The mud-tortoises of India have been properly divided into two species. He might have added, with truth and justice, that the species had been well characterized, and their synonymy well made out; but this would show the ridiculousness of the vain boast which terminates his paper. The species are so distinct that the native fishermen and market people know them by dif-

ferent native names, and the cooks as of different values as articles of diet. The short paper itself is most confused and most carelessly written, but with a most unwarranted assumption of high scientific importance. The same species is referred to under different names; and the names given are rarely used by the authors quoted. For one example among many, he speaks of "*Trionyx javanicus*, Schweigger," but that author never uses such a name. I suspect this is from carelessness and want of consideration*. But a friend has pointed out that he gives one author as the authority for a name when he differs from that writer, and gives another author for the same name when it meets with his approval, both being on the same authority.

Dr. Anderson, when in London about a year ago, stated that he did not think that I properly estimated the late Dr. Fleming, a gentleman whom I knew personally and much esteemed, but I was not aware that I had ever expressed or written a word respecting his writings; and he stated that for all he (Dr. Anderson) knew in zoology he was indebted to the lectures and teaching of that professor. I did not in the least doubt his assertion, but only observed that Dr. Fleming belonged to a time long passed away, and that his best book was a very diluted abstract of part of Cuvier's 'Règne Animal,' published in 1815, and entirely superseded by the second edition of that work. Dr. Anderson's paper in the last Number of the 'Annals' confirms this statement; for here, in 1872, we just have what Dr. Buchanan Hamilton did at the end of the eighteenth century, and what I did in the 'Synopsis of the Reptiles,' published in 1831.

Any one reading Dr. Anderson's paper would imagine that my 'Illustrations of Indian Zoology' was a modern publication, whereas it appeared in 1832, when, I believe, there was not a single specimen of *Trionyx* from India in this country; but knowing that Dr. Buchanan Hamilton had studied the genus, I published copies of his figures in my 'Illustrations,' with his names, and compared them with figures in Hardwicke's collection of drawings from Indian specimens, and published the results of my examination in my 'Synopsis Reptilium,' in 1831. It is to be remembered that that very industrious naturalist, General Hardwicke, to whose exertions Indian zoology owes such a debt of gratitude, formed no less than three collections, and had the misfortune to lose each of

* Dr. Anderson published a paper in the 'Annals' for 1871, vol. viii. p. 324, entitled "On *Testudo Phayrei*, Theob. & Dr. Gray;" but the whole paper is about a *Trionyx*, which must not be confounded with *Testudo Phayrei* of Blyth.

them by shipwreck on their way to this country, escaping with difficulty with his life. After his second shipwreck, and when no longer young, he left England to form a third collection; and that shared the same fate as the preceding two; so that we can only use his drawings and the few materials which were then in our hands. Now Dr. Anderson observes that he has examined 45 living specimens of one and 120 living specimens of another species; but, curiously enough, his paper contains nothing that is not to be found in Hamilton's and Hardwicke's drawings, and in my Synopsis, and other works published years ago.

The two Indian mud-tortoises are:—first, the *Testudo gotaghol* of Hamilton, the *Trionyx javanicus* of Geoffroy St.-Hilaire, and the *Emyda javanica* of Schweigger, which are characterized in my Synopsis before quoted by the very characters which Dr. Anderson gives to distinguish them. The second is *Trionyx hurum* of Hamilton, which is described and figured, just as Dr. Anderson describes it, at p. 47 of my Synopsis, and figured at t. x in the same work, from Hardwicke's drawing; but perhaps Dr. Anderson thinks it forgotten.

Dr. Anderson observes that the skulls of these two species are very different—certainly no new observation; for one is the type of the modern restricted genus *Trionyx*, and the other the type of the genus *Potamochelys*, established on the differences in the skulls. The skulls of both have been repeatedly figured. Truly Dr. Anderson seems to have learned little since he attended my late esteemed friend's lectures. Fortunately there are several very good zoologists and comparative anatomists in India, who are doing good work and extending the science.

BIBLIOGRAPHICAL NOTICES.

A History of the Birds of New Zealand. By Walter Lawry Buller, Sc.D., F.L.S., F.G.S., &c. London (John Van Voorst) and New Zealand (the Author): 1872. 4to. Part I. With 72 pages and 7 coloured plates.

The first work professing to give a complete account of the ornithology of New Zealand must needs be an important one. This ornithic fauna presents so many points of general biological interest, that only those of the islands east of Africa can be compared with it. The last remnant of a former continent, and probably the oldest country on the face of our globe, New Zealand is, or was, tenanted by ornithic forms which have arrived at the verge